

Effect Of Cucumber Juice And Brisk Walking Exercise On Blood Pressure In Elderly Hypertension Patients

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ABSTRACT

Background- The treatment for lowering blood pressure can be pharmacological therapy with drugs and also non-pharmacological therapy. Cucumber juice and brisk walking exercise are non-pharmacological therapy that can be done with.

Purpose - Knowing the effect of cucumber juice and brisk walking exercise on blood pressure in elderly hypertensive patients

Method- This research is quasi experiment with pretest and posttest design, using purposive sampling with amount of 40 respondents who were draw with certain inclusion criteria. Data analysis used to assess the differences in the group with paired t-test and between groups using Independent t tests.

Results- The test results paired t test in the intervention group cucumber juice systolic blood pressure and diastolic p = 0.00 p = 0.00. The test results paired t test in the group of brisk walking exercise systolic blood pressure and diastolic p = 0.01 p = 0.03. Independent test t test in the intervention group cucumber juice and brisk walking exercise with the results systole and diastole p = 0.017 p = 0.04 (<0.05), which indicates that there is a difference in blood pressure between the groups cucumber and group therapy exercise brisk walking. On the intervention of cucumber juice for 7 days can lower systolic blood pressure of 10.2 mm Hg and diastolic blood pressure of 8.9 mmHg. While the intervention brisk walking exercise to lower blood pressure 4 mmHg systolic blood pressure and 3.5 mmHg diastol.

Conclusion - Intervention cucumber juice is more effective than intervention of brisk walking exercise in lowering blood pressure of elderly patients with hypertension.

Keywords : Hypertension, cucumber juice, brisk walking exercise, blood pressure.

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Background. Hypertension is a condition where blood flow is consistently has a high pressure in the artery wall. Diagnosis of hypertension is established if systolic blood pressure above 140 mmHg and diastolic above 90 mmHg.

Hypertension is a risk factor for cardiovascular disease and kidney disease. Men and women have the same risk of hypertension. With modified intake of foods that contain

potassium and magnesium become a complementary therapy to lower blood pressure, one of them is cucumber. Cucumber is a vegetable that grows in all seasons and easily obtained in Indonesia and in potassium and magnesium in 100 grams of 153 mg and 11 mg.

Research conducted by Lebalado and Mulyati (2014) showed that consume cucumber juice containing cucumber 100 grams for 7

days can lower systolic and diastolic blood pressure. A decrease in systolic blood pressure by 12% ($p = 0.000$) and diastolic by 10.4% ($p = 0.000$), compared to the control group at systolic blood pressure drop of 2% ($p = 0.077$) and diastolic blood pressure increase of 1, 1% ($p = 0.419$). Research conducted by Ponggohong, Rompas, and Ismanto (2005) shows the effect of cucumber juice to the reduction of blood pressure in hypertensive patients ($p = 0.000$). This is similar to other studies that showed significant difference after intervention cucumber administration in patients with hypertension ($p = 0.000$).

Besides the management of hypertension based on the pillars of standard treatment and made lifestyle changes that include diet, stress coping organize, regulate the activity patterns, avoiding alcohol and cigarettes. Management of hypertension with medications at this time has indeed been progressed, but there are many reports which said that the patients who come to the hospital will come again with complaints of blood pressure did not decrease significantly even after has been treated. *Brisk walking exercise* as one of the moderate aerobic exercise in patients with hypertension by using the technique of brisk walking for 20-30 minutes at an average speed of 4-6 km / h.

According to the research that has been done Sukarmin, Nurachmah & Gayatri (2013) after brisk walking exercise for 2 weeks (4 days / week, break 2 days) showed a significant decrease in blood pressure in the treatment group systolic blood pressure and diastolic ($p = 0.000$ and $p = 0.000$), while the control group systolic and diastolic blood pressure was not significant ($p = 0.91$ and $p = 0.069$). Agrees with the results of research

conducted by Diana & Restuning and Ita showed a significant decrease in blood pressure.

Objective. In the research that has been done before, the giving of cucumber in patients with hypertension can lower blood pressure significantly, while brisk walking exercise can also show a significant decrease in blood pressure. Since that, the researchers are interested in developing research to examine the effect of cucumber juice and brisk walking exercise in elderly patients with hypertension that can be used as a therapy non farmachology.

Method. This type of research is quasi-experimental with pre-test and post-test design. The variable in this study is the cucumber juice and brisk walking exercise as independent variables and reduction in blood pressure as dependent variables. This research group the respondents into two groups: group 1 with the intervention of the giving of cucumber juice and group 2 with intervention of brisk walking exercise.

The research was conducted on 25 September to 7 October 2018 in Payaman, Magelang. The samples in this study using purposive sampling amounts 40 respondents with the inclusion criteria blood pressure higher than 140/90 mmHg, consume drugs and treatment in the clinic, in age 46-65 years old, able to move independently without drawbacks musculoskeletal upper limb and lower and do not have a visual impairment. Respondents were divided into 2 groups: the intervention group of 20 respondents 20 respondents cucumber juice and brisk walking exercise intervention group. In the intervention group performed the giving of cucumber juice for 7 days (1 week) respectively at a dose of 150 ml (200gr / 150ml) while the exercise intervention do brisk walking for 20-30

minutes for 8 times the intervention in 2 weeks (4 days 2 days of continued intervention intervene again during 4 consecutive days). The provision of these interventions are used to determine the effect of cucumber juice and brisk walking exercise on blood pressure in elderly hypertensive patients.

Systolic and diastolic blood pressure was measured twice using digital sphygmomanometer before and after the intervention of cucumber juice and brisk walking exercise.

Test data normality using Shapiro Wilk test. Differences of Group pre-test and post-test intervention cucumber and brisk walking exercise pair tested with t test. The difference of cucumber group with brisk walking group exercise by test the independent t test

Results and Discussion.

Characteristics of respondents

Table 1. Characteristics of respondents by gender and age

characteristics of respondents	freq	Percent (%)
Gender		
Man	17	42.5
woman	23	57.5
Age		
46-55	13	32.5
56-65	27	67.5

Based on research that has been conducted which dominates in this study is as much as 57.5% of female respondents, while 42.4% of men. This is in line with the opinions of Singalingging in Dwi (2011), which says that the average woman will have an increased risk of high blood pressure (hypertension) after menopause is aged over 45 years. Based on the age of the most respondents at the age of 56-65 years of the 23 respondents. Agrees with Kurniasih in Dwi (2018), says that the incidence of hypertension increases

with age, it is due to the decreased elasticity of blood vessels.

Table 2. The frequency distribution of systolic and diastolic blood pressure cucumber and juice brisk walking group exercise

	Intervention cucumber juice				Brisk walking exercise intervention			
	Systole pre-intervention		Systole post-intervention		Systole pre-intervention		Systole post-intervention	
	fr	%	fr	%	fr	%	fr	%
	eq		eq		eq		eq	
	freq	%	freq	%	freq	%	freq	%
pre-hipertensi 120-139	-	-	-	-	4	20	5	25
Stage 1 hypertension 140-159	8	40	10	50	6	30	5	25
Hypertension stage 2 ≥ 160	12	60	10	50	10	50	10	50
Total	20	100	20	100	20	100	20	100
	Diastole pre-intervention		Diastole post-intervention		Diastole pre-intervention		Diastole post-intervention	
	fr	%	fr	%	fr	%	fr	%
	eq		eq		eq		eq	
	freq	%	freq	%	freq	%	freq	%
	freq	%	freq	%	freq	%	freq	%
normal 80	1	5	1	5	1	5	3	15
pre-hipertensi 80-89	1	5	6	30	8	40	5	25
Stage 1 hypertension 90-99	8	40	6	30	7	35	7	35
Hypertension stage 2 ≥ 100	10	50	7	35	4	20	5	25
Total	20	100	20	100	20	100	20	100

Table 3. The distribution of blood pressure pre-test and post-test intervention group cucumber juice and brisk walking exercise. (MmHg)

Intervention	TD	mean	media n	modus	mot her	Min
cucumber juice	pre	systole-	167.8	163.5	-	193
		diastole	100.5	99	92	135
	Post	systole-	157.6	159.5	130	185
		diastole	91.6	90	90	119
Brisk walking exercise	pre	systole-	157.4	159	145	175
		diastole	95.1	93.5	87	117
	Post	systole-	153.4	157.5	163	172
		diastole	91.6	91.5	82	110

Based on the research results of respondents group of cucumber juice with a systolic blood pressure of pre-intervention and post-intervention showed respondents overwhelmingly

dominated by hypertension stage 2 a number of 22 respondents and blood pressure diastolic pre-intervention of the most respondents with hypertension stage 2 10 respondents and post-intervention show most respondents in stage 1 hypertension is 7 respondents. Whereas in the group brisk walking exercise showed systolic blood pressure pre-intervention and post-intervention with the most respondents in hypertension stage 2 20 respondents and blood pressure diastolic pre-intervention respondents predominantly in hypertension stage 2 of the 7 respondents while the post-intervention blood pressure of respondents the stage of pre-hypertension is 8 respondents.

Effect of cucumber juice and brisk walking exercise on blood pressure

This study was conducted to respondents elderly hypertensive patients both intervention groups cucumber juice and brisk walking exercise intervention group ($n = 40$). Interventions such as cucumber juice given to respondents ($n = 20$) for 7 days in a row while brisk walking exercise intervention ($n = 20$) 20-30 minutes for 8 times in 2 weeks of intervention, exercise for 4 days then rest two days and continued intervention again for 4 days in a row. Respondents cucumber juice intervention group and intervention group of exercise brisk walking are equally taking hypertension medications.

The test results paired t test analysis showed that the intervention of cucumber juice has a difference between the average systolic blood pressure of $p = 0.000$ (<0.05) and diastolic $p = 0.000$ (<0.05) before and after intervention cucumbers. The results are consistent with research conducted Labelado and Mulyati (2014), which concluded that there

were significant influence (significant) on the consuming of cucumber juice on blood pressure reduction. Research conducted Kahrisma, Nisfha and Lestari (2012) shows a cucumber proved affect the workload of the heart, potassium pump natrium and bring calmness that ultimately affect the blood pressure. In brisk walking exercise intervention showed no difference between the average systolic blood pressure of $p = 0.010$ (> 0.05) and diastolic $p = 0.026$ (<0.05) before and after intervention brisk walking exercise in line with the results Sukarmin, Nurachmah & Gayatri (2013) that the exercise brisk walking can lower systolic and diastolic blood pressure.

Differences intervention cucumber juice and brisk walking exercise on blood pressure

Test the difference between the intervention group of the cucumber juice and brisk walking exercise group by using Independent t tests. This test is chosen because the data on these groups were normally distributed ($p > 0.05$). The test results obtained systolic blood pressure significance $p = 0.017$ ($p < 0.05$) and diastolic blood pressure significance of $p = 0.045$ ($p < 0.05$), which means that there are differences in systolic and diastolic blood pressure in the intervention group and intervention group cucumber juice brisk walking exercise.

In addition it obtained the average blood pressure in the intervention group cucumber juice on *pre-test* 167 / 100.5 mm Hg and *posttest* 157.6 / 91.6 mmHg, meanwhile the intervention group exercise brisk walking on a *pre-test* was 157.4 / 95.2 mm Hg and *posttest* 153.4 / 91, 6 mmHg. After a mean difference in intervention cucumber juice can lower systolic blood pressure

of 10.2 mm Hg and diastolic blood pressure of 8.9 mmHg and at a brisk walking exercise interventions can lower systolic blood pressure of 4 mmHg and diastolic 3.5 mmHg.

Conclusion and Suggestions

Conclusion.

1. Characteristics of respondents who dominate the female respondents and 56-65 years old.
2. The majority of respondents in the group of cucumber juice systolic and diastolic blood pressure pre-test and post-test were hypertensive stage 2. While the majority of respondents brisk walking exercise systolic blood pressure in hypertension and diastolic phase 2 pre-test are at stage 2 while diastolic hypertension post -test currently on pre-hypertension.
3. Intervention of cucumber juice is effective in lowering systolic blood pressure diasto $p = 0.000$ and $p = 0.000$. Likewise with brisk walking exercise to be effective in lowering systolic blood pressure and diastolic $p = 0.010$ $p = 0.026$
4. The results showed a difference in systolic blood pressure and diastolic $p = 0.017$ $p = 0.045$ between groups cucumber and group therapy exercise brisk walking. On the intervention of cucumber juice for 7 days on average can reduce systolic blood pressure of 10.2 mm Hg and diastolic blood pressure of 8.9 mmHg. While the intervention exercise brisk walking can lower blood pressure 4 mmHg systolic and 3.5 mmHg diastolic

Suggestion.

1. For nursing
Expected to be suggestions in order to add information to improve knowledge about the effects of cucumber juice and brisk walking

exercise on blood pressure in elderly hypertensive patients.

2. For patients with hypertension in Payaman Magelang

It is expected that hypertensive patients can apply non pharmacological therapy by such as consuming cucumber juice and do brisk walking exercise.

3. For other researchers

Expected for further research using SOP brisk walking exercise that is valid and reliable.

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